



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SORRELLS *et al.*

Appl. No.: 09/632,855

Filed: August 4, 2000

For: **Wireless Local Area Network
(WLAN) Using Universal
Frequency Translation
Technology Including Multi-
Phase Embodiments**

Confirmation No.: 2274

Art Unit: 2634

Examiner: Curtis B. Odom

Atty. Docket: 1744.0630001

Fourth Supplemental Information Disclosure Statement

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98. The numbering on this Fourth Supplemental Information Disclosure Statement is a continuation of the numbering in Applicants' Third Supplemental Information Disclosure Statement filed on July 22, 2004 in connection with the above-captioned application.

Applicants have listed publication dates on the attached Form PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may

not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

Applicants provide the following comments regarding the documents:

Document AA57 was cited in an Office Action in related U.S. Patent Application No. 09/476,093, filed January 3, 2000, entitled "Communication System Method With Multi-Mode and Multi-Band Functionality and Embodiments Thereof, Such as the Family Radio Service," directed to related subject matter. Also cited in said Office Action were U.S. Patent Nos. 5,937,013 and 5,790,587, which have already been cited in the present application.

Documents AB57 and AC57 were cited in a Notice of Allowance in related U.S. Patent Application No. 09/525,615, filed March 14, 2000, entitled "Method, System, and Apparatus for Balanced Frequency Up-conversion of a Baseband Signal and 4-Phase Receiver and Transceiver Embodiments," directed to related subject matter. Also cited in said Notice of Allowance were U.S. Patent Nos. 6,091,940; 6,370,371; 6,694,128; and 6,704,549, which have already been cited in the present application.

Documents AD57-AF57 were cited in an Written Opinion in related PCT Application No. PCT/US03/16403, filed May 27, 2003, entitled "Method and Apparatus for DC Offset Removal in a Radio Frequency Communication Channel," directed to related subject matter. Also cited in said Written Opinion was U.S. Patent No. 5,483,600, which has already been cited in the present application.

Documents AD57-AI57 and AA58-AC58 were cited in an Office Action in related U.S. Patent Application No. 10/290,323, filed November 8, 2002, entitled "Method and Apparatus for DC Offset Removal in a Radio Frequency Communication

Channel," directed to related subject matter. Also cited in said Office Action was U.S. Patent No. 5,483,600, which has already been cited in the present application.

Documents AD58-AF58 were cited in an Office Action in related U.S. Patent Application No. 09/632,857, filed August 4, 2000, entitled "Wireless Local Area Network (WLAN) Technology and Applications Including Techniques of Universal Frequency Translation," directed to related subject matter. Also cited in said Office Action were U.S. Patent Nos. 5,937,013; 6,014,551; 6,073,001; 6,085,073; and 6,314,279, which have already been cited in the present application.

Documents AG58-AI58 and AA59 were cited in an Office Action in related U.S. Patent Application No. 09/986,764, filed November 9, 2001, entitled "Method and Apparatus for Reducing DC Offsets in a Communication System," directed to related subject matter.

Documents AB59 and AP59 were cited in an Office Action in related U.S. Patent Application No. 09/567,977, filed May 10, 2000, entitled "Optical Down-converter Using Universal Frequency Translation Technology," directed to related subject matter. Also cited in said Office Action were U.S. Patent No. 6,608,647, Dines, J.A.B., "Smart Pixel Optoelectronic Receiver Based on a Charge Sensitive Amplifier Design," *IEEE Journal of Selected Topics in Quantum Electronics*, IEEE, Vol. 2, No. 1, pp. 117-120 (April 1996); Simoni, A. *et al.*, "A Digital Camera for Machine Vision," *20th International Conference on Industrial Electronics, Control and Instrumentation*, IEEE, pp. 879-883 (September 1994); and Stewart, R.W. and Pfann, E., "Oversampling and sigma-delta strategies for data conversion," *Electronics & Communication Engineering Journal*, IEEE, pp. 37-47 (February 1998), which have already been cited in the present application.

Documents AC59-AF59 were cited in a Notice of Allowance in related U.S. Patent Application No. 09/987,193, filed November 13, 2001, entitled "Method and Apparatus for a Parallel Correlator and Applications Thereof," directed to related subject matter.

Documents AG59, AH59, and AE60 are co-owned patents which are directed to related subject matter.

Documents AI59 and AA60 were cited in an Office Action in related U.S. Patent Application No. 10/289,377, filed November 7, 2002, entitled "Method and Apparatus for Reducing DC Offsets in a Communication System," directed to related subject matter.

Document AB60 was cited in a Notice of Allowance in related U.S. Patent Application No. 10/197,441, filed July 18, 2002, entitled "Method and System for Frequency Up-Conversion With a Variety of Transmitter Configurations," directed to related subject matter.

Document AC60 was cited in an Office Action in related U.S. Patent Application No. 10/086,250, filed March 4, 2002, entitled "Applications of Universal Frequency Translation," directed to related subject matter.

Document AD60 was cited in a Office Action in related U.S. Patent Application No. 09/590,955, filed June 9, 2000, entitled "Phase Shifting Applications of Universal Frequency Translation," directed to related subject matter. Also cited in said Office Action was U.S. Patent No. 5,982,315, which has already been cited in the present application.

It is noted that some of these documents could be classified in more than one of the above categories.

This statement should not be construed as a representation that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- ☐ 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed before the mailing of a first Office Action on the merits. No statement or fee is required.
- ☒ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.
 - ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart

foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

☒ c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$180.00 in payment of the fee under 37 C.F.R. § 1.17(p).

☐ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$_____ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:

☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a

communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

- ☐ 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.
- ☐ 6. A concise explanation of the relevance of the non-English language documents appears below:
- ☒ 7. A copy of document AP59 is enclosed. However, in accordance with 37 C.F.R. § 1.98(a)(2), copies of the U.S. patents and patent application publications cited on the attached Form PTO-1449 are not enclosed.
- ☐ 8. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. _____, filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).
- ☐ 9. It is expected that the examiner will review the prosecution and cited art in the parent application no. _____, in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier

prosecution histories have been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the attached Form PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

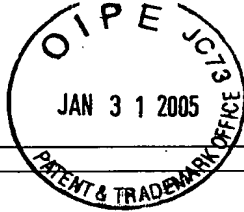


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FORM PTO-1449

FOURTH SUPPLEMENTAL
INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.
1744.0630001

APPLICATION NO.
09/632,855

INVENTORS
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August 4, 2000

ART UNIT
2634

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA57	4,132,952	01/1979	Hongu <i>et al.</i>			
	AB57	5,260,973	11/1993	Watanabe			
	AC57	6,307,894 B2	10/2001	Eidson <i>et al.</i>			
	AD57	6,091,289	07/2000	Song <i>et al.</i>			
	AE57	6,437,639 B1	08/2002	Nguyen <i>et al.</i>			
	AF57	2002/0037706 A1	03/2002	Ichihara			
	AG57	4,441,080	04/1984	Saari			
	AH57	4,873,492	10/1989	Myer			
	AI57	5,697,074	12/1997	Makikallio <i>et al.</i>			

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ						Yes No
	AK						Yes No
	AL						Yes No
	AM						Yes No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	AN		
	AO		
	AP	59	Deboo, Gordon J., <i>Integrated Circuits and Semiconductor Devices</i> , 2 nd Edition, McGraw-Hill, Inc., pp. 41-45 (1977).
	AQ		
	AR		

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

FORM PTO-1449

JAN 31 2005

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA58	5,784,689	07/1998	Kobayashi			
	AB58	6,335,656 B1	01/2002	Goldfarb <i>et al.</i>			
	AC58	6,690,232 B2	02/2004	Ueno <i>et al.</i>			
	AD58	5,636,140	06/1997	Lee <i>et al.</i>			
	AE58	6,366,622 B1	04/2002	Brown <i>et al.</i>			
	AF58	6,600,795 B1	07/2003	Ohta <i>et al.</i>			
	AG58	4,250,458	02/1981	Richmond <i>et al.</i>			
	AH58	5,760,629	06/1998	Urabe <i>et al.</i>			
	AI58	6,084,465	07/2000	Dasgupta			

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AJ						Yes No
	AK						Yes No
	AL						Yes No
	AM						Yes No

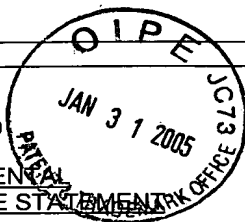
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	AA59	6,204,789 B1	03/2001	Nagata			
	AB59	6,064,054	05/2000	Waczynski <i>et al.</i>			
	AC59	5,218,562	06/1993	Basehore <i>et al.</i>			
	AD59	5,239,496	08/1993	Vancraeynest			
	AE59	5,896,304	04/1999	Tiemann <i>et al.</i>			
	AF59	6,005,903	12/1999	Mendelovicz			
	AG59	6,798,351 B1	09/2004	Sorrells <i>et al.</i>			
	AH59	6,813,485 B2	11/2004	Sorrells <i>et al.</i>			
	AI59	5,410,270	04/1995	Rybicki <i>et al.</i>			

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	AA60	6,509,777 B2	01/2003	Razavi <i>et al.</i>			
	AB60	5,982,329	11/1999	Pittman <i>et al.</i>			
	AC60	6,208,636 B1	03/2001	Tawil <i>et al.</i>			
	AD60	3,614,630	10/1971	Rorden			
	AE60	6,836,650 B2	12/2004	Sorrells <i>et al.</i>			
	AF						
	AG						
	AH						
	AI						

FOREIGN PATENT DOCUMENTS

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